

Physical Therapy Guidelines for Peroneal Tendon Repair

For the Clinician: The intent of this protocol is to provide the clinician with a guideline of the post-operative rehabilitation for the patients who undergo a Peroneal Tendon Repair. It is not intended to be a substitute for clinical decision making regarding the progression of a patient's post-operative course based on their examination/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a post-operative patient, they should consult with the referring surgeon.

For the Patient: The timeframes for expected outcomes contained within this guideline may vary from patient to patient based on individual differences, surgical techniques, surgeon's preference, additional procedures performed, and/or complications. Compliance with all the recommendations provided by your physician and physical therapist as well as your active participation in all parts of the rehabilitation process, are essential to optimizing the success of this procedure.

Introduction:

The peroneal tendons are extensions of the peroneus longus (fibularis longus), peroneus brevis (fibularis brevis), and in some the peroneus tertius, which function primarily to turn the foot outward (evert) and point the foot down (plantar flex). The peroneal tendons run behind the prominent bone on the outside of the ankle. These tendons help to control the position of the foot and ankle during walking.

Peroneal tendon disorders are a common cause of ankle pain in active patients. Commonly associated with lateral ankle sprains, other causes of pain along these tendons can also be due to functional ankle instability, subluxation of the peroneal tendons, insufficiency behind the prominent bone on the outside of the ankle, low lying fibularis brevis muscle, cavus foot (high arch) posture, and/or tearing along the tendons. As there are many factors associated with peroneal tendon disorders, when conservative management fails to improve symptoms, surgery often becomes an option which, ideally, is followed by an appropriately tailored rehabilitation program for optimal recovery and (early) return to sports.

Peroneal surgery is followed by both Non-Weight-Bearing (NWB) immobilization and Weight-Bearing (WB) immobilization to facilitate optimal healing while preventing re-injury. Early range of motion (ROM) is commonly recommended based on the concept that tendons tend to form adhesions between the repaired tissue and surrounding scar tissue after surgical repair. In peroneal tendon injuries, timing and progression to full weight bearing depends on both the nature of the pathology as well as the type of treatment (conservative, tendoscopic, or open—with or without repair of the superior peroneal retinaculum).

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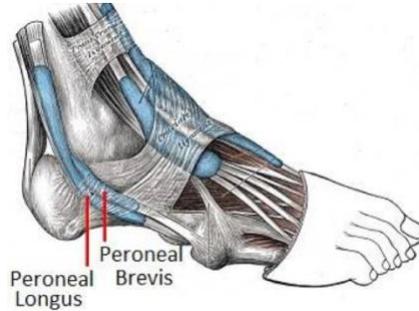


Figure 1: Anatomy of Peroneal Tendons

Treatment:

Acute peroneal tendon injuries have been reported to occur up to 95% in patients with lateral ankle sprains. Tendinosis of the peroneal tendons due to a high arch (cavus) foot posture, separate from ankle sprains, is also a common cause of injury and dysfunction. Due to these injuries, tears frequently occur longitudinally, resulting from subluxation or movement along the lateral malleoli, mainly due to repetitive damage or acute trauma. Conservative management focusing on impairment-based treatments may improve function. It should be noted that current treatment guidelines are primarily based on expert opinion due to the lack of clinical trials. In the case of tendon subluxation, surgery is usually recommended as casting and immobilization has not been shown to improve stability of the tendons.

Non-operative Treatment:

Treatment for peroneal tendinopathy, include but are not limited to, targeting ankle eversion and plantarflexion strength while maintaining appropriate foot and ankle mobility with concurrent gastroc-soleus stretching, ankle and lower extremity mobilizations and manipulations, and balance/proprioceptive training. It is common practice to incorporate non-weight bearing and full weight bearing exercise as pain allows, while progressing from stable to unstable surface training. The use of orthotics to improve loading of the peroneal tendons to reduce strain and stress through the tendons may also be helpful. The goal is to reduce excessive peroneal stress while maximizing total ankle range of motion, strength, and sensorimotor function

Operative Treatment:

Surgical treatment and repair of the peroneal tendons vary based on the nature of the pathology, particularly, the status of the superior peroneal retinaculum (SPR). Surgical treatment may include tendoscopic or open - with or without repair of the superior peroneal retinaculum. When the SPR is not repaired, rehabilitation initially focuses on early mobilizations and ROM in all planes given the lack of opening of the peroneal tendons proximal to the tip of the fibula. Non-weight bearing immobilization is about 2 weeks and immobilization period no longer than 4 weeks is recommended when the SPR remains undisturbed. When the SPR is repaired, immobilization includes non-weight bearing in a lower leg cast for 2 weeks, followed by 4-6 weeks of progressive weight bearing in a walker boot to ensure that the tendons do not dislocate and the SPR repair can heal.

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Tendoscopic or open repair with or without repair of the superior peroneal retinaculum			
Phase	Restrictions and Precautions	Physical Therapy Treatment	Goals
Pre-operative	N/A	-Instruct with use of assistive device based on gait assessment, non-weight bearing (NWB) on affected side	-Demonstrate safe ambulation with assistive device NWB -Able to maintain NWB with transfers and stairs
Post-operative: Days 0-2 weeks	NWB in lower leg splint for 2 days followed by NWB in lower leg cast for 12 days	-Edema management -Gait training and safety (emphasize precautions with weight bearing) -Education/modifications for ADLs	-Manage pain and swelling -Demonstrate safe ambulation with assistive device NWB -Able to maintain NWB with transfers and stairs -Perform activities of daily living (ADLs) in a modified independent manner or with minimal assistance
2-4 weeks	Precautions based on SPR repaired vs. non-repaired, see below	-Modalities and patient education to control swelling -Electric stimulation can be used to prevent muscle atrophy and for pain management (low intensity, high frequency) -Once incision healed, scar mobilization/massage, modified as necessary to avoid strain on the healing SPR -Intrinsic foot strengthening - Strengthening for core, hips, knees (maintain precautions) -NWB fitness/cardiovascular exercises (i.e. bicycle with one leg) -Use Alter-G treadmill, if available, to initiate walking with partial WB	-Manage pain and swelling -Increase range of motion of foot and ankle - Demonstrate safe use of assistive device and begin partial WB -Minimize the loss of strength in the core, hips, and knees -Independence with home exercise program to be performed daily

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	<p>-Begin partial progressive WB in a walker boot or lower leg cast with assistive device if SPR is NOT repaired</p> <p>-If repair of the superior peroneal retinaculum (SPR) is performed, immobilization should consist of 2 weeks NWB in a lower leg cast, followed by 4-6 weeks of progressive partial WB immobilization in a walker boot with NO inversion/eversion for 6 weeks</p>	<p>restriction</p> <p>If SPR is NOT repaired: -Begin AROM Exercises and hands-on techniques (by the PT) for foot and ankle range of motion into plantar flexion (PF), dorsiflexion (DF), inversion, eversion in NWB</p> <p>- Begin partial progressive WB in a walker boot or lower leg cast with assistive device (as recommended by the surgeon)</p> <p>If SPR is repaired: -begin AROM as above, avoiding inversion/eversion for 6 weeks post-op</p> <p>- Begin partial progressive WB in a walker boot or lower leg cast with assistive device (if recommended by the surgeon)</p>	
4-8 weeks	-4-6 weeks: Full WB (based on surgeon recommendation) by 4-6 weeks with assistive device as needed if SPR is NOT repaired	<p>If SPR is NOT repaired: -Begin isometric, concentric and eccentric exercise (may begin use of light resistance with eversion against therapist) with isotonic, and proprioceptive training seated or on 2 legs</p> <p>-Gradually progress from partial WB to full WB (as recommended by the surgeon), consider walking in swimming pool if available</p> <p>-Continue use Alter-G trainer, progressing to full WB</p> <p>-Can begin use of stationary bike</p> <p>-Wean from boot (6-8 weeks/ as recommended by the surgeon)</p>	<p>-Increase ROM of ankle and foot</p> <p>-Improve calf strength and foot intrinsic strength</p> <p>-Minimize loss of strength in core, hips and knees</p> <p>-Facilitate gradual return to WB</p> <p>-Restore gait with use of assistive device as needed</p>

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	<p>-6-8 weeks: If SPR is repaired, continue progressive partial WB gradually progressing to FWB (only if recommended by the surgeon) with assistive device as needed</p>	<p>-Manual therapy for joint mobilizations as indicated for the talocrural, subtalar joint, forefoot and metatarsals</p> <p>If SPR is repaired:</p> <p>-Continue ankle AROM exercise and seated foot/ankle exercise while maintaining motion and weight bearing precautions (no inversion/eversion until after post-op week 6; no standing exercise without boot)</p> <p>-Begin isometric, concentric, and eccentric exercise (may begin use of light resistance with eversion against therapist) after 6 weeks</p> <p>-Progress WB from Progressive PWB to FWB (6-8 weeks) as recommended by the surgeon</p> <p>-Wean from boot, if appropriate</p>	
8-12 weeks	<p>- If SPR is repaired: Attain FWB if not already achieved</p> <p>-Avoid high impact/pivoting – no running</p>	<p>-Continue all concentric/eccentric, isotonic exercises</p> <p>-Wean from the boot in 8-10 weeks (as recommended by the surgeon) if not already weaned off, if SPR is repaired</p> <p>-Initiate eccentric gastrocnemius strengthening off step/ledge</p> <p>-Proprioceptive exercises once full weight bearing without boot: unstable surfaces including foam, wobble board, BOSU ball, trampoline, and Dyna Discs</p> <p>-Progress activity from double leg to single leg (only if pain-free and able to demonstrate good stability on double leg stable and unstable surfaces) on stable surfaces to unstable surfaces</p>	<p>-Full range of motion foot and ankle in all planes</p> <p>-Restore proximal strength/control of the core, hip and knee where applicable</p> <p>-Gradually return to regular functional activities (except sports and sport related activities) if ROM, strength, and gait goals have been met</p>

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Phase	Restrictions and Precautions	Physical Therapy Treatment	Goals
12-24 weeks	<ul style="list-style-type: none"> -Can begin return to run with a walk/jog interval program if full AROM and strength has been achieved (once cleared by the surgeon) -If able to run and perform all activity without pain, may begin sport specific training, otherwise hold off until above is achieved 	<ul style="list-style-type: none"> - Continue proprioceptive exercise on single leg on stable surfaces to unstable surfaces -Progress dynamic WB exercise to include lateral mobility to engage peroneal tendons including speed skaters, use of slide board, lateral step ups/downs -Begin with bilateral plyometrics working towards unilateral plyometrics as tolerated 	<ul style="list-style-type: none"> -Full strength of lower extremity muscles -Gradually return to regular functional activities -Encourage activation along peroneal tendons to facilitate appropriate healing -Improve endurance and performance to minimize risk of re-injury
>24 weeks	<ul style="list-style-type: none"> -Running -Sport Specific Training -Provocation of peroneal tendons 	<ul style="list-style-type: none"> -Progress unilateral plyometrics into sport specific drills -Sport specific training and conditioning (progress to high impact if applicable as tolerated once cleared by surgeon) <p>Functional Screening Tests:</p> <ul style="list-style-type: none"> -Side-hop -6-meter Crossover Hop -Square Hop -Figure-of-8 hop <p>Functional Tests for Return to Sport:</p> <ol style="list-style-type: none"> 1. Timed lateral step-down 2. Timed leap and catch hop sequence 3. Single-leg hop for distance 4. Single-leg timed hop 5. Single-leg triple hop for distance 6. Crossover hop for distance endurance sequence 7. Square hop test 8. Lower Extremity Functional Test (LEFT) 	<ul style="list-style-type: none"> -Gradual return to activities with multi-planar movements on uneven outdoor surfaces -Gradual return to high impact sports that include jogging, running, and jumping

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If you have any questions or concerns related to the content of these rehabilitation guidelines, please contact:

MGH Physical and Occupational Therapy Services (Mass General Waltham)

781-487-3800

Website: <https://www.massgeneral.org/locations/waltham/physical-and-occupational-therapy>

MGH Orthopedics Foot and Ankle

617-724-9338

Website: <https://www.massgeneral.org/orthopaedics/foot-ankle>

References :

- *Van Dijk PAD, Lubberts B, Verheul C, DiGiovanni CW, Kerkhoffs GMMJ. Rehabilitation after surgical treatment of peroneal tendon tears and ruptures. Knee Surg Sports Traumatol Arthrosc. January 2016;1165-1174. doi:10.1007/s00167-015-3944-6.*
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- van Dijk PA, Miller D, Calder J, et al. The ESSKA-AFAS international consensus statement on peroneal tendon pathologies. *Knee Surg Sports Traumatol Arthrosc.* 2018; epub ahead of print
- <https://www.massgeneral.org/orthopaedics/foot-ankle/conditions-and-treatments/peroneal-tears>